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The Solids-not-fat content of milk

The solids-not-fat content of milk shows a high correlation with milk yields from recorded herds provided that the latter figures are adjusted for a yearly improvement factor.

Milk Marketing Board data show:-

Year	S-n-f		Adjusted Yields	
	April	April-March	April	April-March
	(1)	(2)	(3)	(4)
1958-9	8.67	8.71	23.8	21.0
1959-60	8.63	8.70	24.4	21.3
1960-1	8.68	8.72	25.5	21.7
1961-2	8.69	8.735	25.7	21.8
1962-3	8.67	8.73	24.0	21.6
1963-4	8.60	8.695	22.9	20.9
1964-5	8.61	8.70	23.6	20.8
1965-6	8.64	8.705	23.9	21.2
1966-7	8.62	8.69	23.1	20.6
1967-8	8.63		24.0	

The correlations are:

Columns (1) and (3) - 0.79
(2) and (4) - 0.90
(1) and (2) - 0.87

The simplest forecast of annual s-n-f is therefore based on the April values

$$= 5.078 + 0.42A \qquad - (1)$$

By analogy with mild yield forecasting, use of June rainfall factor should improve the formula

R = England and Wales June rainfall - positive over 3.0 in.
zero 2.0 to 3.0 in.
negative below 2.0 in.

then we have

$$5.424 + 0.38A - 0.0075R \qquad - (2)$$

/ Results

Results

Year	Actual Annual S-n-f content	Estimated (1)	error	(2)	error
1958-9	8.71	8.72	+0.01	8.71	0.0
1959-60	8.70	8.705	+0.005	8.705	+0.005
1960-1	8.72	8.725	+0.005	8.725	+0.005
1961-2	8.735	8.73	-0.005	8.73	-0.005
1962-3	8.73	8.72	-0.01	8.73	0.0
1963-4	8.695	8.69	-0.005	8.69	-0.005
1964-5	8.70	8.695	-0.005	8.695	-0.005
1965-6	8.705	8.705	0.0	8.705	0.0
1966-7	8.69	8.70	+0.01	8.695	+0.005
		Mean error	0.006		0.003

Any comments or criticism on this memorandum should be sent to the author.

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